

		BHARAT HEAVY ELECTRICAL LIMITED					Enquiry No. :	
UNIT'S ADDRESS:							Due Date :	
CONTACT PERSON'S: J. P. Madan (AGM) MOD - MM							Supplier Qtn. No.:	
Phone: + 91 (755) 2506848 Fax: + 91 (755) 5201444							Date :	
Email: jpmadan@bhelbpl.co.in								
<u>SPECIFICATION CUM COMPLIANCE CERTIFICATE OF JOB ROTATOR - 20 TON</u>								
NOTE:-								
1. Vendor must submit complete information against clause no. 19.0 The offer meeting this clause would only be processed								
2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.								
3. The offer and all documents enclosed with offer should be in English language only.								
NAME & ADDRESS OF THE SUPPLIER :								
NAME & ADDRESS OF THE SUPPLIER :								
FAX NOS.:								
E-MAIL ADDRESS :								
SCOPE: SUPPLY, ERECTION & COMMISSIONING OF JOB ROTATOR 20 TON COMPLYING WITH SPECIFICATIONS AS BELOW								

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
1	PURPOSE: (Operations/Jobs involved): Rotation of cylindrical jobs up to 20 Ton weight and 1000 mm to 5000 mm diameter for welding purpose at Various prespecified RPM. The turning rolls to be Self Aligning type. Job rotator to be used for job rotation during welding and to be suitable for heavy fabrication continuous working	Vendor to Confirm			
2	SPECIFICATION:				
2.1	Driver Turning Rolls				
2.1.1	Load Capacity \geq 10 ton	Vendor to Confirm			
2.1.2	Concentric Vessel Turning Capacity: \geq 20 tons	Vendor to Confirm			
2.1.3	Typical job Diameter Range: 1000 - 5000 mm	Vendor to Confirm			
2.1.4	Speed range atleast variable between: 150 - 1000 mm /min	Vendor to Confirm			
2.1.5	Dynamic Brake and Rapid traverse to be provided.	Vendor to Confirm			
2.1.6	Arrangement to avoid screwing of job (linear shifting during rotation)	Vendor to Specify			
2.1.7	General Assembly drawing to be sent along with offer with complete technical specifications.	Vendor to Confirm			
2.1.8	Rotator shall be able to roll minimum shell dia of 500mm	Vendor to Confirm			
2.2	Idler Turning Rolls				
2.2.1	Load Capacity \geq 10 ton	Vendor to Confirm			
2.2.2	Typical job Diameter Range: 1000 - 5000 mm	Vendor to Confirm			
2.2.3	Speed range: Free-Wheeling	Vendor to Confirm			
2.2.4	Rotator shall able to roll minimum shell dia of 500mm				

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
2.3	Wheels for Driver and Idler Turning Rolls	Vendor to Confirm			
2.3.1	Material: Poly Urethane tires rimmed with steel.	Vendor to Confirm			
2.3.2	Material should be suitable to withstand 100 ° C temperature	Vendor to Specify			
2.3.3	Diameter:	Vendor to Specify			
2.3.4	Width:	Vendor to Specify			
2.3.5	Overload discs to be provided. Disc do no contact loads that are with in rated capacity.	Vendor to Confirm			
2.3.6	Bearing: Anti friction / Tapered roller bearing per axle	Vendor to Confirm			
3	Motors for Rotation / Tilting				
3.1	Type: AC Vector motor	Vendor to Confirm			
3.2	Make and Model: Siemens / ABB / Crompton/NGEF/Bharat Bijlee	Vendor to specify			
3.3	Capacity and Rating of Motor	Vendor to specify			
3.4	Controller for Motor: AC Vector drive of Allen Bradley / Siemens / ABB / Schneider / Yashakawa	Vendor to specify			
3.5	The roller speed should remain constant (neither decrease nor overdrive) in case of eccentric weight of the job. Vendor to specify the details of transmission arrangement.	Vendor to specify			
4	Operation & Control System: All the controls, switchgear and drive of the rotator shall be housed in a compact IP42 grade enclosure of RITTAL make or equivalent. It shall be preferably mounted at a convenient location on the base frame of the rotator.	Vendor to specify			

SNO	DESCRIPTION FOR BHEL REQUIREMENT		SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
4.1	Operational Control at Control Panel					
4.1.1	Safety Disconnect switch		Vendor to Confirm			
4.1.2	Power On-Off switch with indication lamp.		Vendor to Confirm			
4.1.3	Local / Remote selector switch		Vendor to Confirm			
4.1.4	Start stop switch for Rotation		Vendor to Confirm			
4.1.5	Selector Switch for rotation in clockwise and anticlockwise direction.		Vendor to Confirm			
4.1.6	Rotational speed control with Speed infinitely variable at least between 150 - 1000 mm /min along with speed indicator		Vendor to Specify			
4.1.7	Inching of rotation		Vendor to Confirm			
4.1.8	Emergency Stop Switch		Vendor to Confirm			
4.2	Dust tight Remote control pendant: The length of cable connecting the main panel shall be at least 5m long. The cable shall be housed in heavy duty metallic conduit with PVC sheath of LAPP make or equivalent. It shall have following controls:		Vendor to Specify			
4.2.1	Start stop switch for Rotation		Vendor to Confirm			
4.2.2	Selector Switch for rotation in clockwise and anticlockwise direction.					
4.2.3	Rotational speed control with Speed infinitely variable at least between 150- 1000 mm/min.		Vendor to Specify			
4.2.4	Inching of rotation - clockwise/ anti-clockwise		Vendor to Confirm			
4.2.5	Emergency Stop Switch		Vendor to Confirm			
5	CONSTRUCTION:					

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
5.1	JOB ROTATOR should be made to suit Robust work environment, frequent handling and temperature due to welding of Jobs placed on it.	Vendor to confirm			
5.2	The job rotator to be designed will be normally used on one fixed position however on few occasions it may be required to be shifted hence should be suitable for portability. Adequate lifting and clamping arrangement to be provided for the purpose.	Vendor to confirm			
5.3	The Turning rolls including all the bearings gears etc to be made suitably to withstand temperature of 100 ° C, which may occur due to welding or preheating for long hrs	Vendor to Specify			
6	ELECTRICAL SYSTEM				
6.1	415V $\pm 10\%$, 50HZ $\pm 3\%$, 3 Phase AC (3 wire system with out neutral) Power Supply Source will be provided by BHEL at a single point near the turning rolls, as per layout recommended by Vendor. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the turning rolls/control cabinets, shall be the responsibility of vendor.	Vendor to confirm			
6.2	All electrical & electronic control cabinets & panels should be dust, heat and vermin proof	Vendor to confirm			
6.3	Motors shall conform to IEC or Indian Standards	Vendor to confirm			
6.4	Vendor should ensure the proper earthing for equipment and its peripherals.	Vendor to confirm			
7	Safety / environmental protection of turning rolls to be provided.	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
8	LEVELING & ANCHORING SYSTEM				
8.1	Complete anchoring system including foundation bolts, anchoring materials, fixators, levelling shoes etc shall be supplied for the turning rolls.	Vendor to confirm			
9	ACCESSORIES:				
9.1	Accessories if any recommended by vendor for better functioning of equipment.	Vendor to specify			
9.2	Rotating earthing to be provided. (Vendor to give details)	Vendor to specify			
10	SPARES:				
10.1	Unit price list for itemised breakup of mechanical, electrical and electronic spares used on the Turn Table in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. (Unit Price of each item of spare should be offered)	Vendor to specify			
10.2	All types of spares for total Turn Table and accessories should be available for at least ten years after supply of the Turn Table. If Turn Table or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required	Vendor to specify			
10.3	Recommended set of spares for all attachments are to be offered with details.	Vendor to specify			

SNO	DESCRIPTION FOR BHEL REQUIREMENT		SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
10.4	Vendor to confirm that complete list of spares for turning rolls and accessories, along with specification / type / model, name & address of the spare supplier shall be furnished along with documentation to be supplied with the turning rolls		Vendor to confirm			
11	DOCUMENTATION : Four sets of following documents (Hard copies) in English language should be supplied along with the turning rolls		Vendor to confirm			
11.2	Detailed O & M manual of turning rolls with all drawings of turning rolls assemblies/sub-assemblies/parts including electrical diagrams. All Assembly/Sub Assembly Drawings shall be supplied with the part list also		Vendor to confirm			
11.3	Catalogues, O&M Manuals of all bought out items and supplied accessories including drawings, wherever applicable.		Vendor to confirm			
11.4	Complete Master List of parts used in the turning rolls shall be submitted by the vendor.		Vendor to confirm			
11.5	One additional set of all the above documentation on CD ROM, wherever possible.		Vendor to confirm			
12	ERECTION & COMMISSIONING					
12.1	Supplier to take full responsibility for carrying out the erection, start up, testing of turning rolls, it's control system & all types of other supplied equipment... Service requirement like power, air shall be provided by BHEL at only one point to be indicated by supplier in advance. Other requirements like crane and helping personnel shall also be provided by BHEL. Details of these requirements should be informed by vendor in advance.		Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
12.2	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned at clause 14 (turning rolls Acceptance) shall form part of the commissioning activity.	Vendor to confirm			
12.3	Tools, instruments and other necessary equipment required to carry out all above activities should be brought by the supplier.	Vendor to confirm			
12.4	Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer.	Vendor to confirm			
13	AMBIENT CONDITIONS & THERMAL STABILITY :				
13.1	Total turning rolls including all system and all supplied items should continuously work trouble free and efficiently under following operating conditions and should give specified accuracies. Ambient Conditions: Temperature = 5 to 50 degree Celsius Relative Humidity = 95% max. (Vendor to confirm that turning rolls is suitable for above and details of provisions on the turning rolls for the same are to be furnished by Vendor)	Vendor to confirm			
14	TURNING ROLLS ACCEPTANCE: (Tests/Activities To be Performed by Vendor)	Vendor to accept & confirm			
14.1	Tests/Activities should be carried out at supplier's works on the turning rolls before dispatch :				
14.1.1	The turning rolls should be tested for continuous running for 8 hrs at various speeds.	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT		SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
14.1.2	Demonstration of all operational features of the turning rolls, and all accessories.		Vendor to confirm			
14.2	Test to be carried out at BHEL works while commissioning the turning rolls		Vendor to confirm			
14.2.1	Demonstration of all features of the turning rolls & all accessories to the satisfaction of BHEL.		Vendor to confirm			
14.2.2	Demonstration by actual use of all supplied attachments and accessories to their full capacity.		Vendor to confirm			
14.2.3	On Job prove out and one weeks independent operation of turning rolls by BHEL		Vendor to confirm			
14.2.4	Training of BHEL operators / maintenance personnel in operation / maintenance of complete turning rolls & accessories etc by the supplier's experts / engineers during their stay at BHEL works		Vendor to confirm			
15	PACKING: Sea worthy & rigid packing for all items of complete turning rolls, all Accessories and other supplied items to avoid any damage/loss in transit.		Vendor to confirm			
16	GUARANTEE : 12 months from the date of acceptance of the turning rolls.		Vendor to confirm			
17	GENERAL : The vendor should submit the following information:					

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
17.1	Floor area required (Length, Width, Height) for complete turning rolls & accessories	Vendor to specify			
17.2	Total weight of the turning rolls	Vendor to specify			
17.3	Vendor to submit, along with offer, the reference list of customers where similar turning rolls have been supplied mentioning the customer, turning rolls Model, major specifications of the supplied turning rolls, Year of Supply etc	Vendor to specify			
17.4	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	Vendor to specify			
18	QUALIFYING CONDITIONS :				
18.1	Only those models are to be quoted which have been supplied in large quantity (minimum five numbers) in the past to heavy fabrication industries in the past ten years and are of 20 Ton combined load bearing capacity (driver + idler) and vessel turning capacity of 20 Ton or more with variable speed control. Such machines should be presently working satisfactorily for more than one year after commissioning/ six months in case of BHEL. The following information is to be submitted by the vendor about the companies where similar machines have been supplied.	Vendor to Confirm			
18.1.1	Name of the customer / company where similar machine is installed.	Vendor to specify			
18.1.2	Complete postal address of the customer.	Vendor to specify			
18.1.3	Year of commissioning.	Vendor to specify			
18.1.4	Application for which the machine is supplied with details of accuracies	Vendor to specify			
18.1.5	5. Name and designation of the contact person of the customer.	Vendor to specify			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
18.1.6	Phone, FAX no. and email address of the contact person of the customer.	Vendor to specify			
18.1.7	Performance certificate from the customers regarding satisfactory performance of machine supplied to them	Vendor to Confirm			
18.1.8	BHEL reserves the right to verify information provided by vendor. In case the information provided by vendor is found to be false/incorrect, the offer shall be rejected.	Vendor to Confirm			